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10/662,574	09/15/2003	**Xin Yan Zhang**	MS1-2722US	9730

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/662,574	ZHANG ET AL.	
	Examiner	Art Unit	
	MARSHALL MCLEOD	2457	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-41* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-41* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office action has been issued in response to amendment filed 27 August 2008. Claims 1-41 are pending in this application. Applicants' arguments have been carefully and respectfully considered in light of the instant amendment and are persuasive, as they relate to the claim rejections under 35 U.S.C. 101. As such the examiner withdraws the 35 U.S.C. 101 rejections.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. With respect to claim 1 (line 4), claim 2 (line 2), claim 18 (line 4), claim 19 (line 2), and claim 32 (line 3), "a first set of transport network distances is physically or temporally near to a second set of transport network distances," is indefinite. It is not clearly understood how close of a distance applicant considers physically or temporally near, it is unclear whether physically or temporally near refers to a physically near refers to a couple of inches, feet or miles of distance, also it is unclear whether temporally near refers to a couple of seconds in distance apart in time, a couple of minutes, a hour, several hours, or days in distance apart in time.

Claim Objections

4. Claim 18 is objected to because of the following informalities: Claim 18 recites a processor; a memory coupled to the processor. Claim 18 does not properly indicate through the

use of the proper convention (i.e. underline, etc.) that these terms are newly added limitations to the claim itself. Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. **Claims 25-30, 38 and 39, are rejected under 35 U.S.C. 102(a) as being anticipated by Banerjee et al. (Scalable Peer Finding on the Internet), hereinafter Banerjee.**

7. With respect to claim 25, Banerjee discloses a computer-readable storage medium having thereon computer- executable instructions for performing a method comprising: from a first overlay network peer group, querying a second overlay network peer group for at least one overlay network peer group neighbor of the second overlay network peer group (Page 2206; Section B. Finding the closest peer; Paragraph 1, lines 1-10); measuring a transport network distance between the first overlay network peer group and each of said at least one overlay network peer group neighbor of the second overlay network peer group (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 11-17; i.e. network peer group neighbor reads on …cluster leaders of all the clusters in layer Li) ; and establishing at least one overlay network connection between the first overlay network peer group and one of said at

least one overlay network peer group neighbor of the second overlay network peer group at a minimum measured transport network distance from the first overlay network peer group (Page 2206; Section B. Finding the closest peer; Paragraph 4, lines 1-10), maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 8-10; i.e. intra-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of there neighboring peers, manage peer resources, etc.); and maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate (Page 2206; See Figure 1.; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 1-7; i.e. inter-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of its own peers. Also each peer group has a leader as disclosed within the cited section of the prior art, where each peer group can communicate with other peer groups via the leader. Therefore, each leader of its peer group know which peers are in its group and which is not because it can communicate with the other peer groups there maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate. Because the peer cannot join every peer group at the same time, therefore it is not a participant in at least one peer group); wherein each peer in each overlay network peer group is configured to detect transport network localities and self-organize into interconnected groups by communicating with a locality-aware peer in another overlay network peer group (Page 2206; Section B. Finding the closest Peer; Paragraph 1, lines 1-16; i.e. each leader of a peer group communicates with the other leaders of the other peer groups which makes them interconnected and organized because

each group has a leader that maintains its peer group and can communicate with the other peer groups).

8. With respect to claim 26, it is rejected for the same reasons as claim 25 above. In addition Banerjee discloses wherein each overlay network peer group comprises a peer group leader (Page 2/(2206); Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, line 8).

9. With respect to claim 27, it is rejected for the same reasons as claim 26 above. In addition Banerjee discloses wherein querying the second overlay network peer group comprises querying the peer group leader of the second overlay network peer group (Page 2206; Section B. Finding the closest peer; Paragraph 1, lines 4-7; i.e. leader of the single cluster reads on the second overlay network peer group).

10. With respect to claim 28, it is rejected for the same reasons as claim 26 above. In addition Banerjee discloses wherein querying from the first overlay network peer group comprises querying from the peer group leader of the first overlay network peer group (Page 2206; Section B. Finding the closest peer; Paragraph 1, lines 4-7; i.e. leader of the single cluster reads on the first overlay network peer group).

11. With respect to claim 29, it is rejected for the same reasons as claim 26 above. In addition Banerjee discloses wherein measuring a transport network distance between a pair of

overlay network peer groups comprises measuring the transport network distance between the peer group leaders of the pair of overlay network peer groups (Page 2206; Section B. Finding the closest peer; Paragraph 1, lines 1-7; the closest peer finding operation proceeds top down… reads on measuring the transport network distance between the peer group leaders).

12. With respect to claim 30, it is rejected for the same reasons as claim 26 above. In addition Banerjee discloses wherein establishing an overlay network connection between a pair of overlay network peer groups comprises establishing the overlay network connection between the peer group leaders of the pair of overlay network peer groups (Page 2206; Section B. Finding the closest peer; Paragraph 4, lines 1-10).

13. With respect to claim 38, Banerjee discloses querying a first overlay network peer group for one or more overlay network peer group neighbors of the first overlay network peer group (Page 2206; Section B. Finding the closest peer; Paragraph 1, lines 1-10);
measuring a transport network distance between a second overlay network peer group and each of the one or more overlay network peer group neighbors of the first overlay network peer group (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 11-17; i.e. network peer group neighbor reads on …cluster leaders of all the clusters in layer Li); and establishing at least one overlay network connection between the second overlay network peer group and one or more overlay network peer group neighbors of the first overlay network peer group that is at a minimum transport network distance from the second overlay network peer group (Page 2206; Section B. Finding the closest peer; Paragraph 4, lines 1-10); maintaining

an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 8-10; i.e. intra-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of there neighboring peers, manage peer resources, etc.); and maintaining an inter-group cache which includes information regarding overlay network peer group neighbors other than the overlay network in which the peer participates (Page 2206; See Figure 1.; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 1-7; i.e. inter-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of its own peers. Also each peer group has a leader as disclosed within the cited section of the prior art, where each peer group can communicate with other peer groups via the leader. Therefore, each leader of its peer group know which peers are in its group and which is not because it can communicate with the other peer groups there maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate. Because the peer cannot join every peer group at the same time, therefore it is not a participant in at least one peer group).

14. With respect to claim 39, it is rejected for the same reasons as claim 38 above. In addition Banerjee discloses wherein each overlay network peer group comprises an overlay network peer that is a leader of the overlay network peer group (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, line 7).

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. **Claims 1-2, 18, 19, 21 and 32, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ratnasamy et al. (Topologically-Aware Overlay Construction and Server Selection), hereinafter Ratnasamy, in view of Zhang et al (Pub. No US 2004/0047350 A1), hereinafter Zhang and further in view of Banerjee et al. (Scalable Peer Finding on the Internet), hereinafter Banerjee.**

17. With respect to claim 1, Ratnasamy discloses the second set of transport network distances comprising at least one transport network distance between the overlay network peer and the at least one overlay network peer group neighbor of the overlay network peer group (Page 1195, Section B. Topologically-aware construction of unstructured overlays, Paragraph 2, lines 8-19).

Ratnasamy does not disclose joining a locality- aware overlay module configured to, at least, determine that an overlay network peer should join an overlay network peer group if a first set of transport network distances is physically or temporally near to a second set of transport network distances; the first set of transport network distances comprising at least one transport network

distance between the overlay network peer group and at least one overlay network peer group neighbor of the overlay network peer group, wherein the computer- readable storage medium further stores computer-executable instructions for:

(i) maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates; and

(ii) maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate.

However, Zhang discloses joining a locality- aware overlay module configured to, at least, determine that an overlay network peer should join an overlay network peer group Page 3; [0034], lines 2-5; i.e. selecting the largest neighboring zone reads on the determination of the whether a peer should join a network peer group) if a first set of transport network distances is physically or temporally near to a second set of transport network distances (Page 3; [0034], lines 2-5; i.e. based on the closest distance of the neighboring zone i.e. second set to the destination peer i.e. first set) ; the first set of transport network distances comprising at least one transport network distance between the overlay network peer group and at least one overlay network peer group neighbor of the overlay network peer group (Page 3; [0034], lines 2-5; i.e. based on the closest distance of the neighboring zone, which can also be referred to as a overlay peer group neighbor to the destination peer which can also be referred to as a overlay peer group).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings Ratnasamy with the teachings of Zhang in order to have access to another closer peer group if the peer group that was joined does not have the desired information, which will reduce latency and search times.

The combination of Ratnasamy and Zhang does not disclose wherein the computer- readable storage medium further stores computer-executable instructions for:
(i) maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates; and
(ii) maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate.

However, Banerjee discloses maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 8-10; i.e. intra-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of there neighboring peers, manage peer resources, etc.); and maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate (Page 2206; See Figure 1.; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 1-7; i.e. inter-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of its own peers. Also each peer group has a leader as disclosed within the cited section of the prior art, where each peer group can communicate with

other peer groups via the leader. Therefore, each leader of its peer group know which peers are in its group and which is not because it can communicate with the other peer groups there maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate. Because the peer cannot join every peer group at the same time, therefore it is not a participant in at least one peer group).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings Ratnasamy and Zhang with the teachings of Banerjee in order to make finding the closest peer group efficient and quicker.

18. With respect to claims 2 and 19, they are rejected for the same reasons as claim 1 above. In addition Ratnasamy discloses for each transport network distance in the first set of transport network distances, an arithmetic absolute value of a difference between the transport network distance in the first set of transport network distances and a corresponding transport network distance in the second set of transport network distances is less than a threshold value (Page 1196, Section IV. Topologically-aware Sever Selection, Paragraph 2, Section 2, lines 1-15; i.e. absolute value reads on … MAX… and threshold limit reads on … MIN…).

Neither Ratnasamy nor Banjeree discloses a first set of transport network distances is physically or temporally near to a second set of transport network distances. However, Zhang discloses a first set of transport network distances is physically or temporally near to a second set of

transport network distances (Page 3; [0034], lines 2-5; i.e. based on the closest distance of the neighboring zone i.e. second set to the destination peer i.e. first set).

19. With respect to claim 18, Ratnasamy discloses the second set of transport network distances comprising at least one transport network distance between the overlay network peer and the at least one overlay network peer group neighbor of the overlay network peer group (Page 1195, Section B. Topologically-aware construction of unstructured overlays, Paragraph 2, lines 8-19).

Ratnasamy does not disclose a processor; a memory coupled to the processor; joining a locality-aware overlay module configured to, at least, determine that an overlay network peer should join an overlay network peer group if a first set of transport network distances is near to a second set of transport network distances; the first set of transport network distances comprising at least one transport network distance between the overlay network peer group and at least one overlay network peer group neighbor of the overlay network peer group, wherein the computer- readable storage medium further stores computer-executable instructions for:

(i) maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates; and

(ii) maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate.

However, Zhang discloses a processor (Page 5; [0061], lines 1-22); a memory coupled to the processor (Page 5; [0061], lines 1-22); joining a locality- aware overlay module configured to, at least, determine that an overlay network peer should join an overlay network peer group Page 3; [0034], lines 2-5; i.e. selecting the largest neighboring zone reads on the determination of the whether a peer should join a network peer group) if a first set of transport network distances is near to a second set of transport network distances (Page 3; [0034], lines 2-5; i.e. based on the closest distance of the neighboring zone i.e. second set to the destination peer i.e. first set) ; the first set of transport network distances comprising at least one transport network distance between the overlay network peer group and at least one overlay network peer group neighbor of the overlay network peer group (Page 3; [0034], lines 2-5; i.e. based on the closest distance of the neighboring zone, which can also be referred to as a overlay peer group neighbor to the destination peer which can also be referred to as a overlay peer group).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings Ratnasamy with the teachings of Zhang in order to have access to another closer peer group if the peer group that was joined does not have the desired information, which will reduce latency and search times.

The combination of Ratnasamy and Zhang does not disclose wherein the computer- readable storage medium further stores computer-executable instructions for:

(i) maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates; and

(ii) maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate.

However, Banerjee discloses maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 8-10; i.e. intra-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of there neighboring peers, manage peer resources, etc.); and maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate (Page 2206; See Figure 1.; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 1-7; i.e. inter-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of its own peers. Also each peer group has a leader as disclosed within the cited section of the prior art, where each peer group can communicate with other peer groups via the leader. Therefore, each leader of its peer group know which peers are in its group and which is not because it can communicate with the other peer groups there maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate. Because the peer cannot join every peer group at the same time, therefore it is not a participant in at least one peer group).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings Ratnasamy and Zhang with the teachings of Banerjee in order to make finding the closest peer group efficient and quicker.

20. With respect for claim 21, it is rejected for the same reasons as claim 18 above. In addition, neither Ratnasamy nor Zhang discloses an intra-group cache further comprises an ordered leadership list listing at least one overlay network peer in an overlay network peer group that will become, in the listed order, a leader of the overlay network peer group.

However, Banerjee discloses an intra-group cache (intra-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of there neighboring peers, manage peer resources, etc.) comprising an ordered leadership list listing at least one overlay network peer in an overlay network peer group that will become, in the listed order, a leader of the overlay network peer group (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 8-10; i.e. leadership list reads on center of the cluster to be its leader, because even if the current center/leader of the cluster leaves or is removes the new center of the cluster will be the new leader of the cluster, which is in essence a leadership list.).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of Ratnasamy and Zhang with the teachings of Banerjee in order to simplify and streamline the selection of a new leader for the peer cluster, by having the system keep a list of peer leader candidates.

21. With respect to claim 32, Ratnasamy discloses the second set of transport network distances comprising at least one transport network distance between the peer and said at least

one overlay network peer group neighbor of the overlay network peer group (Page 1195, Section B. Topologically-aware construction of unstructured overlays, Paragraph 2, lines 8-19).

Ratnasamy does not disclose joining an overlay network peer group if a first set of transport network distances is physically or temporally near to a second set of transport network distances, the first set of transport network distances comprising at least one transport network distance between the overlay network peer group and at least one overlay network peer group neighbor of the overlay network peer group, wherein the computer- readable storage medium further stores computer-executable instructions for:
(i) maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates; and
(ii) maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate.

However, Zhang discloses joining an overlay network peer group if a first set of transport network distances is physically or temporally near to a second set of transport network distances (Page 3; [0034], lines 2-5; i.e. based on the closest distance of the neighboring zone i.e. second set to the destination peer i.e. first set); the first set of transport network distances comprising at least one transport network distance between the overlay network peer group and at least one overlay network peer group neighbor of the overlay network peer group (Page 3; [0034], lines 2-5; i.e. based on the closest distance of the neighboring zone, which can also be referred to as a

overlay peer group neighbor to the destination peer which can also be referred to as a overlay peer group).

The combination of Ratnasamy and Zhang does not disclose wherein the computer- readable storage medium further stores computer-executable instructions for:
(i) maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates; and
(ii) maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate.

However, Banerjee discloses maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 8-10; i.e. intra-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of there neighboring peers, manage peer resources, etc.); and maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate (Page 2206; See Figure 1.; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 1-7; i.e. inter-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of its own peers. Also each peer group has a leader as disclosed within the cited section of the prior art, where each peer group can communicate with other peer groups via the leader. Therefore, each leader of its peer group know which peers are in its group and which is not because it can communicate with the other peer groups there

maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate. Because the peer cannot join every peer group at the same time, therefore it is not a participant in at least one peer group).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings Ratnasamy and Zhang with the teachings of Banerjee in order to make finding the closest peer group efficient and quicker.

22. **Claims 3-7, 20, 33-34, 37 and 41, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ratnasamy et al. (Topologically-Aware Overlay Construction and Server Selection), hereinafter Ratnasamy, in view of Zhang et al (Pub. No US 2004/0047350 A1), hereinafter Zhang, in view of Banerjee et al. (Scalable Peer Finding on the Internet), hereinafter Banerjee, and further in view of Pabla et al. (Pub. No US 2004/0162871 A1), hereinafter Pabla.**

23. With respect to claim 3, it is rejected for the same reasons as claim 1 above. In addition Ratnasamy discloses wherein a transport network distance between a first node and a second node in a transport network comprises a round-trip time for a message between the first node and the second node (Page 1191, Introduction, Paragraph 3, lines 4-8).

24. With respect to claim 4, it is rejected for the same reasons as claim 1 above. In addition Ratnasamy discloses wherein a transport network distance between a first node and a second

node in a transport network comprises transport network latency between the first node and the second node (Page 1193, Section 6. Nearest-neighbor clustering; Paragraph 8, lines 16-18).

25. With respect to claim 5, it is rejected for the same reasons as claim 1 above. In addition Pabla discloses wherein a transport network distance between a first node and a second node in a transport network comprises a count of transport network routing hops between the first node and the second node (Page 44; [00528], lines 1-5).

26. With respect to claim 34, 37 and 41, Ratnasamy, Zhang, and Banerjee does not disclose a computer-readable medium having thereon computer- executable instructions for performing a method. However, Pabla discloses a computer-readable medium having thereon computer-executable instructions for performing a method (Pages 62-63, [0769] lines 1-11).

27. With respect to 6, it is rejected for the same reasons as claim 1 above. In addition, neither Ratnasamy, Zhang nor Pabla discloses wherein:

each overlay network peer group comprises a peer group leader;

the transport network distance between the peer and an overlay network peer group comprises the transport network distance between the peer and the peer group leader of the overlay network peer group;

and the transport network distance between a first overlay network peer group and a second overlay network peer group comprises the transport network distance between the

peer group leader of the first overlay network peer group and the peer group leader of the second overlay network peer group.

However, Banerjee discloses wherein:

each overlay network peer group comprises a peer group leader (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, line 7);

the transport network distance between the peer and an overlay network peer group comprises the transport network distance between the peer and the peer group leader of the overlay network peer group (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 8-13);

the transport network distance between a first overlay network peer group and a second overlay network peer group comprises the transport network distance between the peer group leader of the first overlay network peer group and the peer group leader of the second overlay network peer group (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 2, lines 3-5; Figure 1, Layer 1; i.e. Layer 1 shows the cluster leaders together grouped together to form a cluster, which means that each cluster leader knows the distance between each other).

It would have been obvious to a person having skill in the art at the time of invention to modify the combined teachings of Ratnasamy, Zhang and Pabla with the teachings of Banerjee, by modifying one of the peer's in their network to become the leader or head peer in the network. In order to keep track of all the peer distances in the network through a single peer location,

which would reduce the amount of time the peers in the network spend searching or measuring the distances between their peer neighbors by allowing them to ask/query the leader/head peer, as to which neighbor peer is the closest to them.

28. With respect to claims 7, 20 and 33, Ratnasamy discloses measuring each transport network distance in the second set of transport network distances (Page 1198; Section V. Related Work; Paragraph 1, lines 1-5; i.e. uses latency to measure distance).
Neither Ratnasamy, Zhang nor Pabla discloses querying the overlay network peer group for the first set of transport network distances.
However, Banerjee discloses querying the overlay network peer group for the first set of transport network distances (Page 2206; Section B. Finding the closest peer; Paragraph 1, lines 1-10).

29. **Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ratnasamy, in view of Zhang, in view of Banerjee, in view of Pabla, and further in view of Traversat et al. (Pub. No US 20020184310 A1), hereinafter Traversat.**

30. With respect to claim 8, it is rejected for the same reasons as claim 1 above. In addition, the combination of Ratnasamy, Zhang, Banerjee and Pabla does not disclose if the peer does not join the overlay network peer group, adding the at least one overlay network peer group neighbor of the overlay network peer group to a list of candidates; and selecting the nearest overlay network peer group in the list of candidates as the next to be considered for joining.

However, Traversat discloses if the peer does not join the overlay network peer group, adding the at least one overlay network peer group neighbor of the overlay network peer group to a list of candidates; and selecting the nearest overlay network peer group in the list of candidates as the next to be considered for joining (Page 24; [0311], lines 1-12).

It would have been obvious to a person having skill in the art at the time of invention to modify the combined teachings of Ratnasamy, Zhang, Banerjee and Pabla with the teachings of Traversat by allowing any new node/peer wanting to join a peer group the ability to keep track of neighboring peer groups next to the peer they wanted to join. In order to minimize the amount of time and queries/searches that a new peer has to do, before it finds an appropriate peer group to join.

31. With respect to claim 9, it is rejected for the same reasons as claim 8 above. In addition, Traversat discloses determining to establish a new overlay network peer group if, after testing each selected candidate, the peer has not joined an existing overlay network peer group (Abstract, lines 11-14).

32. **Claims 10, 35 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banerjee in view of Traversat.**

33. With respect to claim 10, Banerjee discloses a method comprising grouping overlay network peers such that each peer in a peer group has a similar transport network proximity measure with respect to peers in other peer groups (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 4-12; i.e. reads on chooses the center of the cluster to be its leader, by doing this each peer group has a similar structure and set of distances), maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 8-10; i.e. intra-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of there neighboring peers, manage peer resources, etc.); and maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate (Page 2206; See Figure 1.; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 1-7; i.e. inter-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of its own peers. Also each peer group has a leader as disclosed within the cited section of the prior art, where each peer group can communicate with other peer groups via the leader. Therefore, each leader of its peer group know which peers are in its group and which is not because it can communicate with the other peer groups there maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate. Because the peer cannot join every peer group at the same time, therefore it is not a participant in at least one peer group).

Banerjee does not disclose a computer-readable medium having thereon computer- executable instructions.

However, Traversat discloses a computer-readable medium having thereon computer- executable instructions (Page 39; [0500], lines 1-11).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of Banerjee with the teachings of Traversat, in order to have a portable set of instructions that can be easily moved from one computer to another.

34. With respect to claim 35, Banerjee discloses a method comprising grouping overlay network peers such that each peer in a peer group has a similar transport network proximity measure with respect to peers in other peer groups (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 4-12; i.e. reads on chooses the center of the cluster to be its leader, by doing this each peer group has a similar structure and set of distances), maintaining an intra-group cache comprising information regarding a first overlay network peer group in which the peer participates (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 8-10; i.e. intra-group cache i.e. is inherent in every in peer group since all systems have memory to keep track of there neighboring peers, manage peer resources, etc.); and maintaining an inter-group cache which includes information regarding overlay network peer group neighbors other than the overlay network in which the peer participates (Page 2206; See Figure 1.; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 1-7; i.e. inter-group cache i.e. is inherent in every in peer group since

all systems have memory to keep track of its own peers. Also each peer group has a leader as disclosed within the cited section of the prior art, where each peer group can communicate with other peer groups via the leader. Therefore, each leader of its peer group know which peers are in its group and which is not because it can communicate with the other peer groups there maintaining an inter-group cache comprising information regarding at least one overlay network peer group in which the peer does not participate. Because the peer cannot join every peer group at the same time, therefore it is not a participant in at least one peer group).

Banerjee does not disclose a computer-readable medium having thereon computer- executable instructions.
However, Traversat discloses a computer-readable medium having thereon computer- executable instructions (Page 39; [0500], lines 1-11).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of Banerjee with the teachings of Traversat, in order to have a portable set of instructions that can be easily moved from one computer to another.

35. With respect to claim 36, it is rejected for the same reasons as claim 35 above. In addition Traversat discloses wherein the grouping of the overlay network peers is performed by the overlay network peers (Page 9; [0115], line 1).

36. **Claims 11-17, are rejected under 35 U.S.C. 103(a) as being unpatentable over Banerjee and Traversat, in view of Ratnasamy.**

37. With respect to claim 11, it is rejected for the same reasons as claim 10 above. The combination of Banerjee and Traversat does not disclose wherein the transport network proximity measure comprises a communications round-trip time between peers.

However, Ratnasamy discloses wherein the transport network proximity measure comprises a communications round-trip time between peers (Page 1191, Introduction, Paragraph 3, lines 4-8). It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the combined teachings of Banerjee and Traversat with the round-trip teachings of Ratnasamy, in order to use it as one of the many ways to calculate distance between peers in a network.

38. With respect to claim 12, it is rejected for the same reasons as claim 10 above. In addition Traversat discloses wherein similar transport network proximity measures (Page 26; [0333], lines 1-4; i.e. discovery query message...to find peers or peer groups is essentially a peer sending a message to a peer or peer group and measuring the distance between itself and the peer or peer group in order to find peers that has the information it wants) have an absolute difference less than a threshold value (Page 26; [0333], lines 4-7).

39. With respect to claim 13, it is rejected for the same reasons as claim 10 above. In addition Traversat discloses wherein the grouping of the overlay network peers is performed by the overlay network peers (Page 9; [0115], line 1).

40. With respect to claim 14, it is rejected for the same reasons as claim 10 above. In addition Ratnasamy discloses adding a new overlay network peer to an existing peer group if transport network proximity measures between the existing peer group and peer group neighbors of the existing peer group are similar to transport network proximity measures between the new overlay network peer and the peer group neighbors of the existing peer group (Page 1195; Section B. Topologically-aware construction of unstructured overlays; Paragraph 2, lines 8-19).

Ratnasamy does not disclose that if the new overlay network peer is not added to an existing peer group, establishing a new peer group comprising the new overlay network peer.
However, Traversat discloses that if the new overlay network peer is not added to an existing peer group, establishing a new peer group comprising the new overlay network peer (Abstract, lines 11-14).

41. With respect to claim 15, it is rejected for the same reasons as claim 14 above. In addition Traversat discloses generating a new peer group identifier (Page 12; [0147], lines 5-6); and establishing at least one overlay network connection to at least one peer group that is nearby in the transport network (Page 11; [130], lines 1-7).

42. With respect to claim 16, it is rejected for the same reasons as claim 15 above. In addition Banerjee discloses each peer group comprises a peer group leader (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, line 7); and establishing an overlay network connection between a first peer group and a second peer group comprises establishing the overlay network connection between the leader of the first peer group and the leader of the second peer group (Page 2206; Section B. Finding the closest peer; Paragraph 4, lines 1-10; i.e. the cluster leader … query the previous layer cluster leader).

43. With respect to claim 17, it is rejected for the same reasons as claim 14 above. In addition Traversat discloses that before establishing a new peer group, the new overlay network peer traverses existing peer groups (Abstract, lines 11-14); adding the at least one neighboring peer group of the current peer group to a list of candidate peer groups; and selecting a next peer group from the list of candidate peer groups that is at a minimum transport network distance from the new overlay network peer (Page 24; [0311], lines 1-12).

Traversat does not disclose that each peer group has at least one neighboring peer group. However, Banerjee discloses each peer group has at least one neighboring peer group (Page 2206; Section A. Hierarchical Arrangement of Application Peers; Paragraph 1, lines 4-5; i.e. each layer is portioned into a set of clusters, which means that each layer has several groups as depicted in Figure 1, Layer 0, which has 3 clusters/group).

44. **Claim 22, is rejected under 35 U.S.C. 103(a) as being unpatentable over Ratnasamy, in view of Zhang, in view of Banerjee and further in view of Xu et al. (Pub. No US 2004/0085329), hereinafter Xu.**

45. With respect to claim 22, it is rejected for the same reasons as claim 18 above. In addition, neither Ratnasamy, Zhang, nor Banerjee discloses an intra-group maintenance module configured to, at least, determine if a current leader of an overlay network peer group has left the overlay network peer group.
However, Xu discloses an intra-group maintenance module configured to, at least, determine if a current leader of an overlay network peer group has left the overlay network peer group (Page 2; [0022], lines 14-17).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of Ratnasamy with the teachings of Xu in order to speed up the selection of a new peer leader and not cause any interruption in service or slow down to the peer network.

46. **Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ratnasamy, in view of Zhang, in view of Banerjee and further in view of Traversat.**

47. With respect to claim 23, it is rejected for the same reasons as claim 18 above. In addition, neither Ratnasamy, Zhang, nor Banerjee discloses a list of at least one overlay network

peer group neighbor of an overlay network peer group; and for each neighbor in the list, a measured transport network distance between the overlay network peer group and the neighbor.

However Traversat discloses a list of at least one overlay network peer group neighbor of an overlay network peer group (Page 22; [0286], lines 5-6); and for each neighbor in the list, a measured transport network distance between the overlay network peer group and the neighbor (Page 16; [0199], lines 1-2; Page 22; [0286], lines 4-9).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the teachings of Ratnasamy, Zhang and Banerjee with the teachings Traversat in order to make the selection of a peer group neighbor faster by having a saved list of peer group neighbors and there distance.

48. With respect to claim 24, it is rejected for the same reasons as claim 18 above. In addition, Ratnasamy discloses an inter-group maintenance module configured to, at least, periodically measure a transport network distance (Page 9; Paragraph 4, lines 2-5).

Neither Ratnasamy, Zhang, nor Banerjee discloses an overlay network peer group and each overlay network peer group neighbor of the overlay network peer group.
However, Traversat discloses an overlay network peer group and each overlay network peer group neighbor of the overlay network peer group (Page 23; [0292], lines 1-6).

49. **Claims 31 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Banerjee in view of Ratnasamy.**

50. With respect to claim 31, Banerjee does not disclose wherein a transport network distance between a pair of overlay network peer groups comprises a round-trip time for a message between the pair of overlay network peer groups.

However, Ratnasamy discloses wherein a transport network distance between a pair of overlay network peer groups comprises a round-trip time for a message between the pair of overlay network peer groups (Page 1191, Introduction, Paragraph 3, lines 4-8).

It would have been obvious to a person having ordinary skill in the art at the time of the invention to modify the combined teachings of Banerjee with the round-trip teachings of Ratnasamy, in order to use it as one of the many ways to calculate distance between peers in a network.

51. With respect to claim 40, it is rejected for the same reasons as claim 39 above. In addition Banerjee does not disclose wherein a transport network distance between a pair of overlay network peer groups comprises a round-trip time for a message between the overlay network peers that are the leaders of the pair of overlay network peer groups.

However, Ratnasamy discloses wherein a transport network distance between a pair of overlay network peer groups comprises a round-trip time for a message between the overlay network peers that are the leaders of the pair of overlay network peer groups (Page 1191, Introduction, Paragraph 3, lines 4-8).

Response to Arguments

52. Applicant's arguments with respect to claims 1-41 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARSHALL MCLEOD whose telephone number is (571)270-3808. The examiner can normally be reached on Monday - Thursday 6:30 a.m-4:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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